Beaver-1

Beaver-1 Overview

Volunteer monitoring began in the north basin of Beaver Lake (Beaver-1) in 1997 and continued through 2004. Monitoring data show that this lake in the city of Sammamish is relatively high in primary productivity (mesotrophic to eutrophic), with fair water quality, which appears to be stable over time. The sensitivity of the lake basin to human impact was verified through the Beaver Lake Management Plan and its update (King County 2000).

Beaver-1 has no public access boat ramp, but can be accessed through the channel connecting with Beaver-2. Residents should monitor plants growing nearshore to catch early infestations of Eurasian milfoil, Brazilian elodea, or other noxious aquatic weeds.

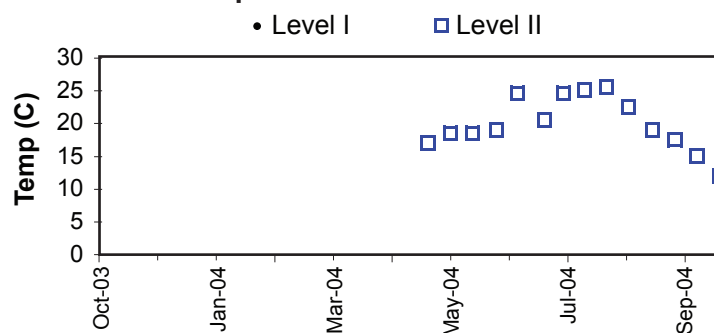## Lake Temp, Secchi Depth, Lake Level and Precip

Secchi transparency remained steady through the sampling season, ranging from 0.8 to 1.5, averaging 1.1 m which was at the low end of the range for monitored small lakes in 2004, affected by the tea-color of the water. Surface water temperatures were in the upper middle range of the group in 2004, with a high of 25.5 degrees Celsius.

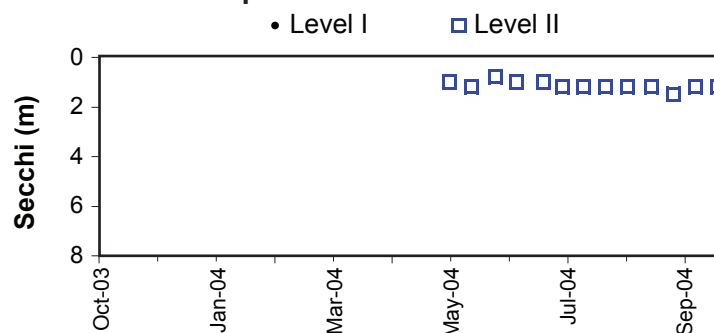There were no data collected on lake levels or precipitation.

Nutrient Analysis and TSI Ratings

Total phosphorus and nitrogen remained generally proportional to each other through the period, the ratio ranging from 18 to 57, averaging 31 with conditions often unfavorable for nuisance bluegreen growth.
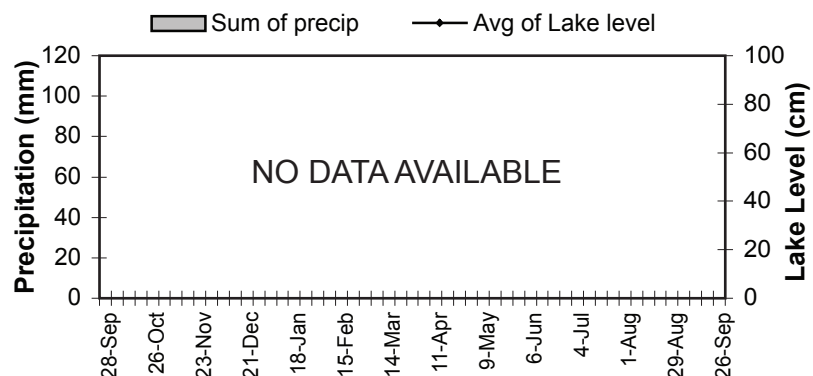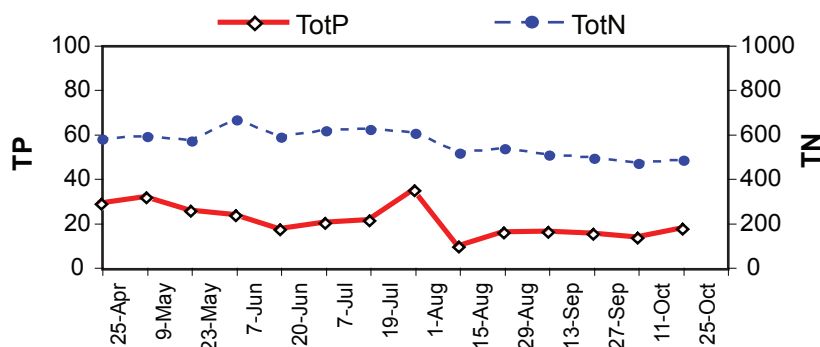
Lake Temperature

Secchi Depth

Lake Level and Precipitation

NO DATA AVAILABLE

Nutrient Analysis

The profile samples indicated thermal stratification persisted through summer and phosphorus increased in the deep water by late summer. Chlorophyll data suggested that algae concentrations were higher in the shallow water.

In 2004 the average TSI-Secchi was higher than the other two indicators, similar to the previous six years. If the TSI-Secchi relates more to water color than algae, the other two indicators may be more representative of trophic state, placing Beaver-1 at the threshold between mesotrophy and eutrophy.

## Chlorophyll Concentrations and Algae

Chlorophyll content reached several peaks through the sampling period, with the greatest in early June which was produced by the bluegreen *Aphanizomenon flos-aquae.* Other commonly occurring algae included the colonial chlorophyte *Botryococcus braunii*, several unidentified species of chrysophytes, the diatom *Cyclotella*, and the cryptophyte *Rhodomonas*.

Date	Secchi	depth-m	degC	Chlor-A	TP µg/L	TN µg/L
5/23/04	1.2	1	18.5	4.33	25.0	572
		7	6.0	<detect	31.3	639
		14	5.0		76.0	717
8/29/04	1.2	1	22.5	3.20	15.2	536
		7	6.5	1.10	17.0	642
		14	6.5		173.0	970

TSI Ratings
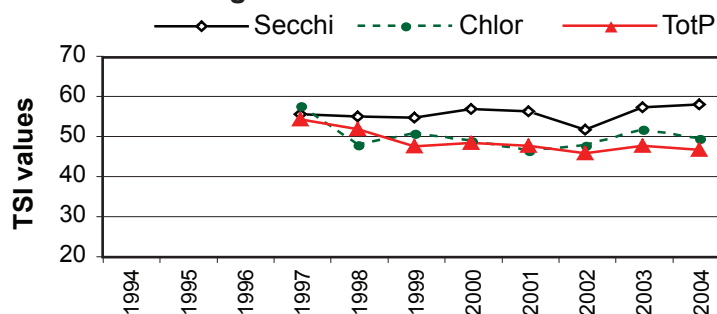
Chlorophyll a Concentrations (ug/L)
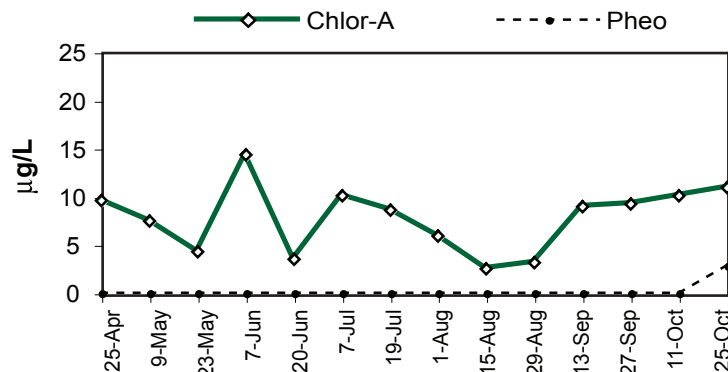
Common Algae

	Group
Aphanizomenon flos-aquae	Cyanobacteria
chrysophyte (unicell)	Chrysophyta
Botryococcus braunii	Chlorophyta

Beaver-1

2004 Level I Data not available

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2004 Level II Data

Date (2004)	Temp (°C)	Secchi (m)	Chl-*a* (µg/l)	TP (µg/l)	TN (µg/l)	Algae Obsv.	N:P	Calculated TSI		
								Secc	chl-a	TP
25-Apr	17.0	NR	9.61	28.3	580	2	20		52.8	52.4
9-May	18.5	1.0	7.53	31.1	592	2	19	60.0	50.4	53.7
23-May	18.5	1.2	4.33	25.0	572	3	23	57.4	44.9	50.6
7-Jun	19.0	0.8	14.35	23.0	666	3	29	63.2	56.7	49.4
20-Jun	24.5	1.0	3.52	16.7	588	3	35	60.0	42.9	44.8
7-Jul	20.5	1.0	10.10	19.7	618	3	31	60.0	53.3	47.1
19-Jul	24.5	1.2	8.65	20.7	623	3	30	57.4	51.7	47.9
1-Aug	25.0	1.2	5.93	34.3	606	2	18	57.4	48.0	55.2
15-Aug	25.5	1.2	2.56	9.0	517	2	57	57.4	39.8	35.8
29-Aug	22.5	1.2	3.20	15.2	536	2	35	57.4	42.0	43.4
13-Sep	19.0	1.2	8.97	15.6	507	2	33	57.4	52.1	43.8
27-Sep	17.5	1.5	9.29	14.6	494	2	34	54.1	52.4	42.8
11-Oct	15.0	1.2	10.10	13.0	471	2	36	57.4	53.3	41.2
25-Oct	12.0	1.2	11.00	17.1	485	2	28	57.4	54.1	45.1
	Temp (°C)	Secchi (m)	Chl-*a* (µg/l)	TP (µg/l)	TN (µg/l)	Algae	N:P	Calculated TSI		
								Secc	chl-a	TP
Mean	19.9	1.1	7.8	20.2	561.1	2.4	31	58.2	49.6	46.6
Median	19.0	1.2	8.8	18.4	576.0	2	31	57.4	51.9	46.1
Min	12.0	0.8	2.6	9.0	471.0	2	18	54.1	39.8	35.8
Max	25.5	1.5	14.4	34.3	666.0	3	57	63.2	56.7	55.2
Count	14	13	14	14	14	14	14	13	14	14

TSI Average = 51.5